

Geographic variation in the Andean Coot *Fulica ardesiaca*

by Jon Fjeldså

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4 — Fjeldså (1982) stated that the Neotropical Chestnut-fronted and White-fronted Coots previously known as *Fulica americana peruviana* and *Fulica ardesiaca* differ from one another in food and habitat preference, but nevertheless interbreed so often that it appears reasonable to treat them as one taxon (Gill 1962). These coots in some respects resemble another Neotropical species, the Red-gartered Coot *F. armillata* rather than the Nearctic *F. americana*. The gap which separates them from Nearctic coots appears to be larger than that between the Nearctic and Old World's coots, which are currently recognized as separate species. A species status, *Fulica ardesiaca*, was therefore proposed for the Andean Coot and *F. americana peruviana* is synonymized. The Colombian Coot *F. americana colombiana*, on the other hand, has been regarded as intermediate between a typical *F. a. americana* and a chestnut-fronted *ardesiaca*. However, the appearance of downy young, voice and ethology places the Colombian Coot together with Nearctic and White-winged Coot *F. leucoptera*, and separates it from the Andean Coot (Fjeldså 1983).

The final proof of a species status for the Andean Coot would be to document sympatry with the Colombian Coot. The most southern record of a typical Colombian Coot (*Am. Mus. Nat. Hist.* 254930, ad. ♂, 12 March 1925) is from a breeding site for Andean Coots, Lake Yaguarcocha near Ibarra (0°20'N, 78°W) in northern Ecuador. However, the population of the Colombian Coot since then has declined, due to hunting and habitat destruction, and may today count at most 2000 birds in the Colombian departments Cundinamarca and Boyaca. This is well outside the northernmost breeding sites of Andean Coots in the department Nariño (2°N, 77–78°W).

The present study was made in order to see whether the morphological variation among Andean Coots could give any indication of past gene flow between the pertinent taxa.

Materials

I examined all specimens of the involved taxa in the zoological museums of the main universities in Bogotá, Buenos Aires, Copenhagen, Lima and Santiago de Chile and in the American Museum of Natural History (77 ad. Andean and 19 ad. Colombian Coots, mostly specimens collected when the Colombian Coot was possibly still numerous). The study was supplemented by field notes, mainly on colours of soft parts, in Peru (September 1977 to January 1978 and October 1981) and Colombia (September–October 1981), and information from field studies by Ole Byskov (Ecuador, Peru), Niels Krabbe (Peru, Bolivia), Karsten Thomsen (Ecuador) and Pierre de Villers (Peru), to whom I am grateful for their data.

Results

Colours of soft parts have been described by, for example, Gill (1962), Ripley (1977) and Fjeldså (1982, 1983). Colombian Coots differ from chestnut-fronted Andean Coots by having a smaller frontal shield (length 11.9–17.4 mm, against 18.5–27 mm) with a pointed posterior outline, chestnut-red

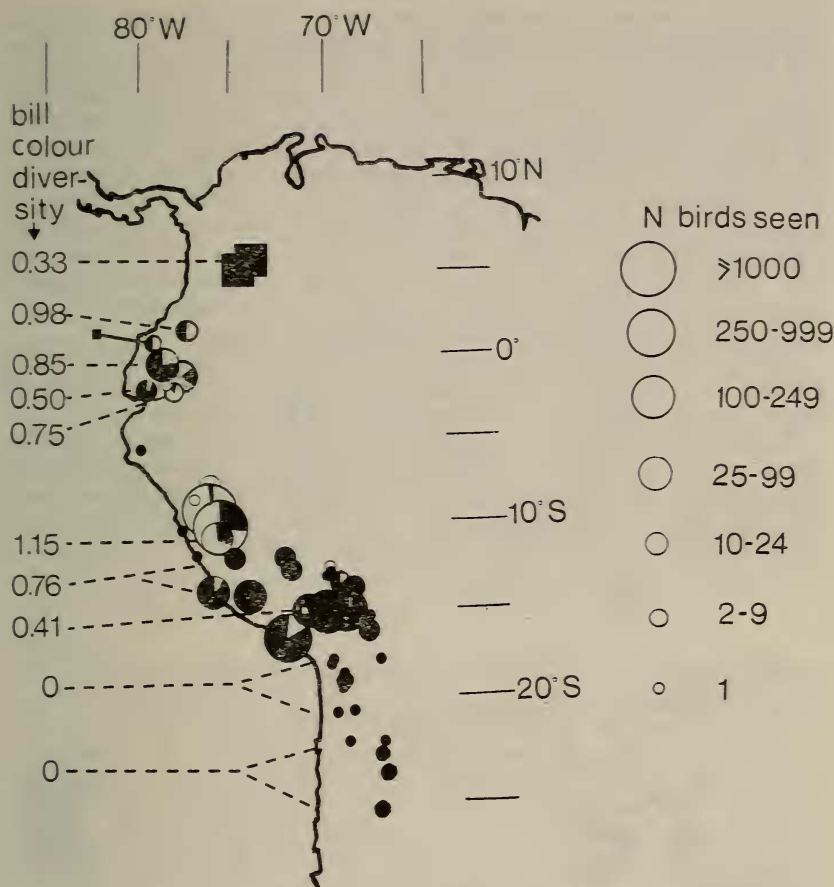


Fig. 1. Variation in the fractions of dark-fronted (black) and pale-fronted (white) individuals in coot *Fulica* populations in different parts of Colombia, Ecuador, Peru and northern Chile and Argentina. Squares show *F. americana columbiana*, circles *F. ardesiaca*. The size of the symbols indicates sample size. The diversity indices (see Hurtubia 1973) for the colour of bill with frontal shield is based on recognition of 10 colour categories.

subterminal spots on both mandibles (characters closely matched by Nearctic Coots), and yellow colouring only at the base of the upper mandible. The feet are olive green with more or less extensive yellow and orange areas, as in Nearctic Coots (Crawford 1978). Andean Coots have 2 main morphs – frontal shield chestnut/bill yellow/legs and feet green, or shield white/bill white/legs and feet grey, and some 'subtypes'. Fig. 1 is based on classification into these 2 main types, but the diversity indices (see Hurtubia 1973) to the left of the map are based on a classification into 10 colour subtypes.

Fig. 1 shows considerable local variation within the range of the Andean Coot, with stable conditions only in the furthest south. The northernmost populations show no general convergence towards the colours typical of the

Colombian Coot and no particular increase in diversity; but a high diversity is found wherever both main morphs are well established.

A bird from Lake Cocha in Nariño had a red zone from the frontal shield down the tomiom, a detail typical of Red-gartered Coots. One bird from Cumbal in Nariño had a chestnut subterminal spot on the upper mandible. Similar spots have been found, though, as rare anomalies, as far south as in Lake Titicaca (16°S, 69°W) and I have seen it also in a White-winged Coot from Argentina. According to my field experience, the latter species may show a dimorphic shield colour (orange-scarlet or yellow). A disposition for polymorphic variation and for occurrence of bill-spots may thus be evolutionarily older than the speciation in the *Fulica americana/alai/ardesiaca/atra/caribea/cristata/leucoptera* complex, and the various characters may consequently have only slight genealogical information value.

There is no geographical trend in measurement within the range of the Andean Coot. The only particularly small (*columbiana*-sized) individual I found was from Peru, far away from any possible hybridization zone.

The general colour tone is almost identical in Colombian and Andean Coots. Extensive white apical markings on the inner secondaries are most typical of Nearctic, White-winged and Old World Coots. The extent of such markings was quantified according to a 12-point scale, zero meaning no white, 12 the state typical of a Nearctic Coot. Colombian Coots gave a mean

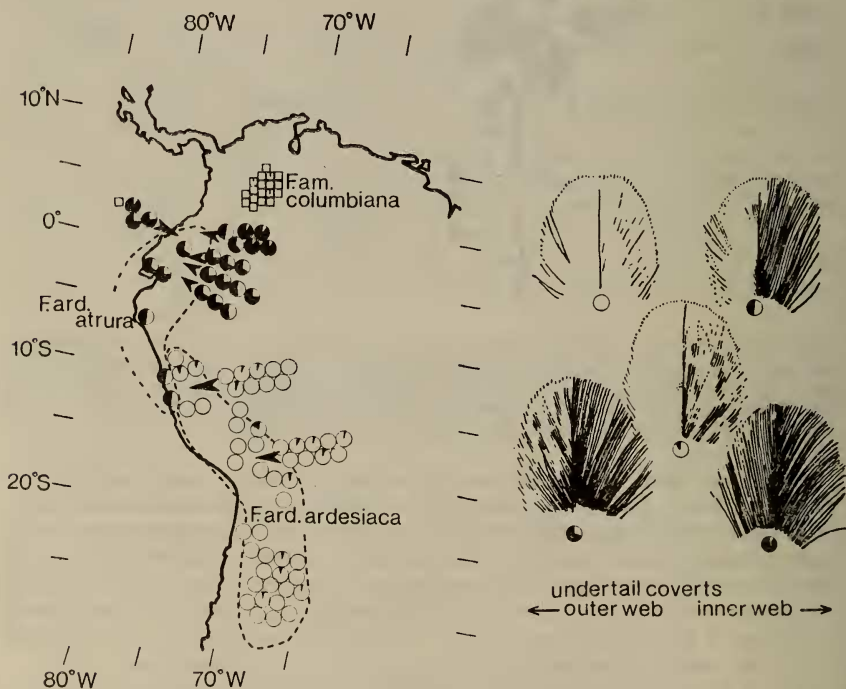


Fig. 2. Variation in amount of white colour on the undertail coverts of Andean Coots (circles) and Colombian Coots (squares). Five feathers with corresponding symbols are depicted, and geographic range of recognized taxa indicated.

value 9.42, 3 individuals having white only distally on some inner webs. Andean Coots usually have small white spots, but there is considerable individual variation all the way from Nariño to the Titicaca area, while white spots are almost absent further south. The average score for Andean Coots was 2.33 in Nariño, 2.37 in Ecuador, 2.93 in Central Peru, 1.80 in the Peruvian/Bolivian altiplano and 0.35 in northern Chile and Argentina. Six birds which overlapped with the range of variation among Colombian Coots were from Nariño (1), central Ecuador (1), central Peru (3) and Titicaca (1). The variability may thus occur throughout the zone with polymorphic variation in soft part colours, although the amount of white colour on the secondaries was not associated with any particular soft part colour.

Fig. 2 shows the variation in amount of white colour on the undertail coverts. These are completely white and form 2 broad white bands under the tail in most coots and gallinules, including Nearctic and Colombian Coots. This possibly primitive character is found in juvenile Andean Coots and in adults from the southern parts of the range. However, adult Andean Coots from coastal Peru northwards from Lima and from the paramos of Ecuador, and especially Nariño, have black inner webs on the undertail coverts and the outer webs more or less streaked or freckled black, in a few individuals virtually lacking any white colour. As seen from Fig. 2, very few birds from the highlands of central Peru and further south have dusky freckles on the undertail coverts, and no bird even approached the condition seen in the north of the range.

Conclusion

The variation in colours of bill and frontal shield and in wing-pattern give no basis for taxonomic subdivision, but suggest a genetic instability throughout much of the range of the Andean Coot. This could be a result of hybridization of 2 main morph types of Andean Coots (previously known as *Fulica ardesiaca* and *F. americana peruviana*), which possibly once were allopatric (Fjeldså 1982). Although a considerable variability is found in the north of the range, no specimens appeared to be hybrids between any of these and Colombian Coots, and there was no clinal change towards the Colombian Coot. On the contrary, the northernmost Andean Coots decidedly diverged from Colombian Coots in one character, the pattern of the undertail coverts. As this pattern is exposed in certain displays (Fjeldså 1983), one could suspect that the geographic trend was due to selection against hybridization in a period of sympatry.

Although direct evidence as to how Colombian and Andean Coots would interact in sympatry is lacking, one can conclude that the geographic variation gives no direct evidence of past interbreeding, but instead suggests a possible divergence in a plumage display signal. This evidence supports the conclusion (Fjeldså 1982) that the Andean Coot should be maintained as a separate species, *Fulica ardesiaca*.

The variation in tail-pattern was overlooked by previous students of Andean Coots. As my data show no overlap in this character between birds from the Andean puna zone and birds from the paramos of Nariño and Ecuador and from coastal Peru, a recognition of subspecies appears to be justified on the basis of this character. Since the species as such was described first from the puna zone (Junín, 11°S, 76°W, 1843), the puna zone populations should be ranked as nominate subspecies. As also Morrison's (1939) name

peruviana refers to birds from Junín, a new name must be proposed for the aberrant populations found further north:

***Fulica ardesiaca atrura* subsp. nov.**

Diagnosis. Differs from the nominate subspecies as the undertail covert feathers are not purely white, but have black inner webs and more or less extensive black streaking and freckling also on the outer webs; in some individuals, in fact, the undertail coverts are nearly completely black.

Distribution. In paramos and some lowland swamps from Nariño in southern Colombia through Ecuador and coastal Peru south to Lima. As Andean Coots from paramos in northern Peru were not represented in the present data, their racial attachment remains unknown.

Type specimen. Zool. Mus. Univ. Copenhagen 37.891, Ecuador, 7 October 1909.

Material examined. 77 ad. Andean Coots, including 25 of this taxon.

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A new species of Thicket Warbler *Cichlornis* (Sylviinae) from Bougainville Island, North Solomons Province, Papua New Guinea

by Don Hadden

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The little known and elusive genus of thicket-warblers, *Cichlornis*, was first described by Mayr (1933) from a specimen taken in 1926 by R. H. Beck, who collected one bird from mountain forest (2500 ft) on Espiritu Santo in Vanuatu. Mayr named this unique specimen *C. whitneyi*. Another male and 3 females were also taken from Espiritu Santo between 1933 and 1935 by A. J. Marshall and T. Harrison (Cain & Galbraith 1955). A new subspecies, *C. w. turipavae*, was also described by Cain & Galbraith in the same paper from a single specimen taken by native hunters from Turipava (4100 ft) on Guadalcanal. Two other *Cichlornis* specimens were collected in December